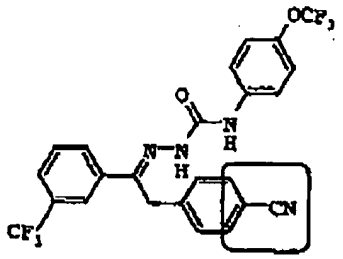
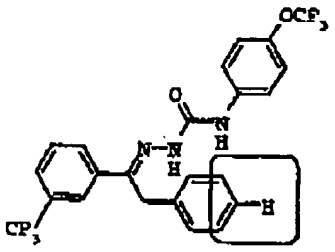
Test report

Compared active ingredients:



Compound I (present invention)



Compound II (D1, D3)

Test conditions:

1) Activity against ants / pests of the order *Hymenoptera*

The activity of the two compounds was evaluated against Argentine ant, *Linepithema humile*, and western harvester ant, *Pogonomyrmex occidentalis* workers via forced-exposure soil contact bioassays.

Forced exposure contact assays (ants): The tests were conducted in 100 x 50 mm glass crystallizing dishes. Test arenas were prepared by dispensing a thin layer of 1% agar into the dishes and then spreading 5 g (thin layer) of Florida sandy soil over the agar. Test treatments were applied as acetone solutions dispensed with a fine dropper over the sand surface to simulate spray treatment at the rate of 0.4 l / m². Dishes were vented to evaporate the acetone and then infested with ants. Plastic covers were used to conserve moisture and additional water was added as needed. Test dishes were maintained in the laboratory (22 °C) and observed for mortality daily for 7 to 10 days.

2) Activity against termites / pests of the order *Isoptera*

The activity of the two compounds was evaluated against eastern subterranean termite, *Reticulitermes flavipes*, and southeastern subterranean termite, *Reticulitermes virginicus*, workers via forced-exposure soil contact bioassays. The behavior of termites in the treated soil was studied through tunneling assays. The activity of the two compounds also was evaluated in bait assays against eastern subterranean termite, *Reticulitermes flavipes*, and Formosan subterranean termites, *Coptotermes formosanus*.

Forced exposure contact assays: termites (*R. flavipes* and *R. virginicus*) were tested in 60 x 15 mm plastic Petri dishes with 2 g treated soil spread over a thin layer of 1% agar. Treatments were incorporated into sandy-loam soil using acetone solutions. Treatment rates were calculated as ppm of the active ingredient (w/w) in dry soil. Termite workers were confined on the soil surface with a small piece of filter paper (1 cm^2) as a food source. Test dishes were maintained at 25 °C and 85% humidity, and observed for mortality daily for 7 days.

Soil tunneling assays: Transparent PVC tubes (13 cm long with 1.5 cm diameter) were used as test arenas. The middle of each tube was packed with sandy-loam soil to form a

5-cm soil column. Soil was held in place with 1 cm plugs of 5% agar. One end of the tube was packed with a preferred food source (woodflour) and termites were placed into the opposite end with small strips of filter paper provided as a food source. The ends of the tubes were plugged with stoppers and the tubes were set upright with termites at the top and woodflour at the bottom. Termite penetration depth was measured daily and termite mortality was recorded at after 7 days.

Bait assays: The compounds were incorporated into cellulose bait (aspen fiber) and tested for efficacy against eastern subterranean termite, *Reticulitermes flavipes* and Formosan subterranean termite, *Coptotermes formosanus*. Bioassays were conducted in 100x15 mm Petri dishes with 10 g sand spread in a thin layer over the bottom of each dish with an additional 2.5 g sand piled against the side. Water (2.8 ml) was applied to the piled sand. Additional water was added as needed over the course of the bioassay to maintain moisture content in sand. Bait samples (0.25 g) were packed into 50x9 mm Petri dishes with tight-fit lids (3 mm hole in side of dish for termite entry) and moistened with 0.5 ml water. Testing was done with one bait enclosure per dish. Test dishes were maintained at 25°C and 85% humidity and observed daily for 14 days for mortality [dead or moribund insects (morbidity characterized by inability to stand with weak movement of legs)] or intoxication (characterized by uncoordinated movement).

Results:

Ant Assays:

Compound I of formula I of the present invention was significantly more active against ants than compound II.
At 300 ppm compound I caused 90% mortality of *Linepithema humile* at 7 days compared with only 4% mortality by compound II.
At 3000 ppm compound I caused 40% mortality of *Pogonomyrmex occidentalis* at 9 days compared with 0% mortality by compound II.

Furthermore, survivors in the compound I treatments were all intoxicated (uncoordinated movement), whereas, those in the compound II were all unaffected and normal.

Termite Assays:

Soil forced exposure assays.
At 30 ppm compound I caused over 85% mortality of *Reticulitermes flavipes* at 7 days compared with only 25% mortality resulted from compound II.
At 30 ppm compound I caused over 90% mortality of *Reticulitermes virginicus* at 7 days compared with only 50% mortality resulted from compound II.

Soil tunneling assays.
At 30 ppm compound I caused 100% mortality of *Reticulitermes flavipes* at 7 days compared with only 25% mortality resulted from compound II.

Bait assays.
At 0.1% ai (w/w) compound I caused 100% mortality of *Reticulitermes flavipes* at 14 days compared with only 27% mortality resulted from compound II.
At 0.1% ai (w/w) compound I caused over 95% mortality of *Coptotermes formosanus* at 14 days compared with only 9% mortality resulted from compound II.

In summary, through various bioassay systems, compound I was by far and significantly more active than compound II against the ant and termite species tested.

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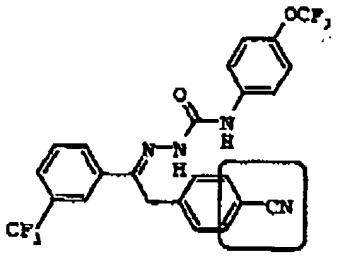

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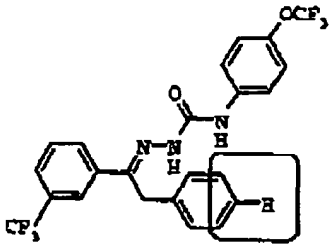

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